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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,762	10/04/2004	Kenneth S. Kump	GEMS8081.240	5761

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EXAMINER	
SONG, HOON K	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/711,762	KUMP, KENNETH S.	
	Examiner	Art Unit	
	Hoon Song	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,17,18 and 20-33* is/are rejected.

7)☒ Claim(s) *11-16 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 November 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 21-32 is withdrawn in view of the newly discovered reference(s) to Yamamoto (US 2004/0114725A1) and Dvorkis (US 2003/0136844A1). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-10, 17-18 and 20-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 2004/0114725A1) in view of Dvorkis (US 2003/0136844A1).

Regarding claim 1, Yamamoto teaches an x-ray imaging system comprising:

an x-ray detector (14) configured to detect radiation emitted by an x-ray source and attenuated by a subject to be imaged, and provide an electrical output that may be processed for reconstruction of an image of the subject (figure 4).

However Yamamoto fails to teach at least one electronic sensor (9) configured to detect gravitational loads placed on the x-ray detector.

Dvorkis teaches an accelerometer (800) for sophisticated electronic device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the x-ray detector of Yamamoto with the gravitational sensor as

taught by Dvorkis, since the device of Dvorkis would indicate/inform proper working condition of the detector or sophisticated electronic device (paragraph [0102]).

Regarding claim 2, Dvorkis teaches the x-ray detector includes a circuit board with electronics to control operation of the detector and wherein the at least one electronic sensor is disposed on the circuit board (Dvorkis teaches the sensor is mounted on scanner board).

Regarding claim 3, Yamamoto teaches the at least one electronic sensor is powered by a power supply of an x-ray scanner when the x-ray detector is tethered to the x-ray scanner (figure 4).

Regarding claim 4, Yamamoto as modified by Dvorkis teaches a battery (41) disposed in the x-ray detector that provides power to the at least one electronic sensor.

Regarding claim 5, Yamamoto teaches a controller configured to read out data from the at least one electronic sensor at predefined intervals (semiconductor based detector).

Regarding claim 6, Yamamoto the controller is configured to read out data from the electronic sensor at 250 μs intervals.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the read out rate at 250 μs, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Accordingly, the proper operation condition of the detector read out would be improved by finding the optimum working range.

Regarding claims 7, 22 and 30, Yamamoto as modified by Dvorkis teaches the controller is further configured to assign at least one of a time and a date stamp to each reading of an electronic sensor (Dvorkis, paragraph [0023]).

Regarding claim 8, Yamamoto as modified by Dvorkis teaches the controller is further configured to store readings from an electronic sensor in a log (Dvorkis, paragraph [0023]).

Regarding claim 9, Yamamoto as modified by Dvorkis teaches the controller is further configured to write over readings stored on the log such that a limited number of readings are stored in the log (Dvorkis, paragraph [0023]).

Regarding claim 10, Yamamoto as modified by Dvorkis teaches the controller is further configured to compare the gravitational load from a current reading of an electronic sensor to that of a stored reading in the log and if the gravitational load of the current reading exceeds that of the stored reading, then overwrite the stored reading with the current reading (Dvorkis, paragraph [0107]).

Regarding claim 16, Yamamoto as modified by Dvorkis fails to teach the threshold is 10 G.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the threshold to be 10G, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Accordingly, the proper operation condition of the detector would be improved by finding the optimum working range.

Regarding claim 17, Yamamoto as modified by Dvorkis teaches the x-ray detector includes flash storage (1818) connected to store data output by the electronic sensor.

Regarding claim 18, Yamamoto teaches one or more mechanical sensors (800) that mechanically detect gravitational loads placed on the x-ray detector.

Regarding claim 20, Yamamoto as modified by Dvorkis teaches the at least one electronic sensor includes a plurality of accelerometers (800).

Regarding claim 21, Yamamoto teaches an x-ray detector comprising:

a scintillator (15) configured to emit light in response to reception of radiation;

a detector element (16) array having a plurality of detector elements, each detector element configured to detect light from the scintillator (15) and provide an electrical signal that may be processed for image reconstruction.

However Yamamoto fails to teach an accelerometer configured to detect gravitational events and measure a gravitational load placed on the x-ray detector of a gravitational event.

Dvorkis teaches an accelerometer (800) for sophisticated electronic device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the x-ray detector of Yamamoto with the gravitational sensor as taught by Dvorkis, since the device of Dvorkis would indicate/inform proper working condition of the detector or sophisticated electronic device (paragraph [0102]).

Regarding claim 23, Dvorkis teaches the accelerometer includes RAM and is further configured to record data for the measured gravitational event in RAM (paragraph [0056]).

Regarding claim 24, Dvorkis teaches the accelerometer is further configured to replace recorded data such that data for a single measured gravitational event is recorded.

Regarding claim 25, Dvorkis teaches the accelerometer is further configured to compare a currently measured gravitational event to the recorded gravitational event and, if the currently measured gravitational event has a greater measured gravitational force than that of the recorded gravitational event, then replace data for the recorded gravitational event with that of the currently measured gravitational event.

Regarding claim 26, Dvorkis teaches the RAM is configured to be cleared out following each readout of data stored therein.

Regarding claim 27, Dvorkis teaches battery to power the accelerometer.

Regarding claim 28, Dvorkis teaches the accelerometer is configured to sample a gravitational load on the x-ray detector at a sampling rate of 4 kHz.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the sampling rate of 4 hHz, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Accordingly, the proper operation condition of the accelerometer would be improved by finding the optimum working range.

Regarding claim 29, Yamamoto teaches an x-ray scanner comprising:

an x-ray source configured to project radiation at a subject (figure 1a);

an x-ray detector configured to detect radiation projected at and attenuated by the subject (figure 1a).

However Yamamoto fails to teach the x-ray detector having an electronic means of measuring a gravitational load placed on the x-ray detector; and

a controller configured to read out data from the electronic means and determine if the x-ray detector has been subjected to a potentially damaging gravitational load.

Dvorkis teaches an accelerometer (800) for sophisticated electronic device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the x-ray detector of Yamamoto with the gravitational sensor as taught by Dvorkis, since the device of Dvorkis would indicate/inform proper working condition of the detector or sophisticated electronic device (paragraph [0102]).

Regarding claim 31, Yamamoto as modified by Dvorkis teaches the controller is further configured to output one of audio and a visual indication that the x-ray detector has been subjected to a potentially damaging gravitational load (Dvorkis, paragraph [0017]).

Regarding claim 32, Yamamoto as modified by Dvorkis teaches the electronic means includes an accelerometer (800).

Regarding claim 33, Yamamoto as modified by Dvorkis teaches the controller is further configured to acquire data from the electronic means when the x-ray detector is

connected thereto and further configured to maintain a database of data acquired from the electronic means (Dvorkis, paragraph [0017]).

Response to Arguments

Applicant's arguments with respect to claims 1-10, 17-18 and 20-33 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

Claims 11-16 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 11-16, Hoheisel fails to teach the controller is further configured to compare the gravitational load of a current reading of an electronic sensor to a threshold and illuminate an LED on the x-ray detector based on the comparison as claimed in dependent claim 11.

Regarding claim 19, Hoheisel fails to teach the one or more mechanical sensors includes a fluid filled label sealed to a surface of the x-ray detector, wherein the fluid changes color when exposed to a given gravitational load as claimed in dependent claim 19.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is (571) 272-2494. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DAVID V. BRUCE
PRIMARY EXAMINER

HKS

9/14/05
HKS